Department of
Environmental Protection
Bureau of Land & Water Quality September 2004
O&M Newsletter

A monthly newsletter for wastewater discharge licensees, treatment facility operators, and associated persons

Index

Financial Management – A Primer

Financial Management is a subject often avoided by operators. However, it is critical to the proper operation of every wastewater treatment facility in the state. To help you better understand the principles and practices of good financial management, we will be publishing this and four more Financial Management articles in the *O&M News*. We will try to keep the articles as simple as possible while covering the material thoroughly. In this first article, we will talk about the basic principles of financial management and some of the terms that we will use in this series of articles.

The basic principle of a good financial management system is to provide accurate information so that decisions can be properly made and the resources of the facility can be properly administered. You need to know how much money you will spend and how you will spend it in a given period (usually a year) and how you will get the money you need to cover those expenses. You also need to make sure that the facility and all its parts and pieces will function properly and that when those parts and pieces break (as all mechanical system will), there is enough money to fix or replace them.

The process of financial management involves four steps, which will be covered in detail in the four articles that follow this one. The steps are:

- Planning
- Budgeting
- Accounting an Financial Reporting
- Revenue Acquisition

Planning means looking ahead, deciding how you want things to be and then taking the steps to ensure that things will be the way you want them to be. In the wastewater treatment facility, planning involves looking

at operations and general maintenance expenses, payments on outstanding debt, projecting the cost of any major repairs or equipment replacement that may be required and what amount of money, if any, you want to put away for major capital expenses. You probably have a pretty good handle on the ongoing operations and maintenance costs. You know what your personnel, energy, chemical and other operating costs have been and you can probably forecast those pretty well. Predicting if and when a major piece of equipment will break and how much it will cost to fix or replace it and probably not as easy to do. A good financial plan will include some money for "contingencies", the things you "know" will happen but which you can't predict with any certainty. Our next article in this series will discuss the planning process in more detail.

When your plan is done, you should turn it into a budget. The budget assigns costs to categories of expenses, such a personnel, energy, chemicals, etc. There are several model budgets available to help you classify your projected expenses. Your budget should include a category for repair and replacement expenses. Even if you have just had a major upgrade at your plant and everything is "under warranty"; you need to budget some money for repair and replacement. As a facility gets older, that budget item should probably be increased to allow for the higher probability that something will break.

Your budget should probably increase somewhat each year. Costs for personnel, benefits, energy, chemicals and other operations expenses usually increase with time. You should make an effort to realistically predict the operating costs so that your managers and customers can see the need for a rate increase if that is necessary. Sometimes, after a rate increase, you will collect enough extra money to put some "in the bank" so that as expenses increase, you can maintain your rates and still have enough money to pay the bills. Proper planning and good budgeting based on those plans can help make sure that you are not faced with delaying a necessary equipment replacement or, worse, laying off staff, because there is not enough income to pay all you expenses. Article 3 in this series will take a look at the budgeting process.

Once your budget has been developed and approved by your municipal officials or trustees, you must keep track of your income and expenses. Accounting is the process of determining where a given amount of money coming into or going out of your facility should be allocated. It is the job of your bookkeeper or accountant to make sure that the income and expenses at your facility are properly accounted for so that you and the responsible officials can know what's going on financially at any given time.

Your payroll check stub probably shows the allocation of money to several accounts. Part of you pay goes to Federal and State income taxes, some may go to Social Security or another retirement program. Some may go to pay the employees share of health benefits. The municipality or district pays part of your Social Security and may pay part of your health benefits or other benefits. Although you get one paycheck, the money that comes from your employer may go to many different accounts. Similarly all income into and payments from your facility must be properly accounted for.

Your bookkeeper or accountant should prepare financial statements on at least a quarterly basis. Financial statements usually show actual income and expenses compared with budgeted amounts. A quarterly (or better, a monthly) review of the actual income and expenses give you a good picture of your financial status at that time. You may see that some accounts are doing just about what you expected while others are way over or under their projected amounts. If one account is over budget, you may have to shift money from another account to cover the shortfall. A periodic financial statement gives you the information you need to manage your finances appropriately. The fourth article in

this series will include some tips on accounting and financial reporting.

Your financial statement shows both income and expenses. As noted above, good planning and budgeting should show you when a rate increase is necessary and how much of an increase you should make. When properly developed, your user rates allocate costs to the users who are actually causing those costs. The portion of you budget that covers the cost of debt service on your facilities is typically charged on a per customer basis unless one customer, a large industry for example, requires a substantial portion of your treatment capacity. In that case, the industry may pay directly for the portion of the capacity they require and the remaining capacity costs are divided equally among the other users.

The cost of operations and routine maintenance is typically dependent on flow and loading to your facility. Again, if you have a large industry that discharges either a large amount of flow, wastewater having high pollutant loading, or both to you facility, your rate structure should allow you to charge the industry in proportion to the costs incurred when you treat their wastewater. Residential customers, on the other hand, typically pay either a flat rate or, preferably, a rate based on water use. Developing a good, fair rate structure is probably the hardest part of the financial management process. In the last article in this series, we will discuss some tools that are available to help you develop fair, equitable rates for your facility.

Certification News

The Fall 2004 wastewater operator certification exam will be given on ***November 10, 2004*** in the usual locations. Applications for the November exam must be ***postmarked by September 25, 2004*** or ***hand-delivered to the DEP Augusta office on September 27, 2004***.

For Practice

1. Electrical power is measured in
   a. coulombs
   b. volts
   c. amps
   d. watts

2. A proportional control valve
   a. can travel from fully closed to fully open depending on the input signal
   b. is always fully open or fully closed
   c. is limited in its range of travel
   d. can only open half-way

3. The typical person uses about how much water every day?
   a. more than 150 gallons
   b. 75 – 125 gallons
   c. 20 –50 gallons
   d. 5 – 10 gallons
4. How long will it take to fill a tank 8 feet wide by 15 feet long by 4 feet deep if water is flowing in at the rate of 40 gallons/minute.
   a. 50 minutes
   b. 70 minutes
   c. 90 minutes
   d. 120 minutes

Approved Training

August 11, 2004 in Portland ME – Activated September 9, 2004 in Augusta ME – Security Session – Sponsored by MRWA – 729-6569 – Approved for 6 hours
*****
September 14, 2004 in South Berwick ME – After SWAP: BMP and Municipal Ordinances to Protect Drinking Water – Sponsored by MRWA – 729-6569 – Approved for 3.5 hours
*****

September 21, 2004 in Hinckley ME – After SWAP: BMP and Municipal Ordinances to Protect Drinking Water – Sponsored by MRWA – 729-6569 – Approved for 3.5 hours
*****
September 28, 2004 in Old Orchard Beach ME - Sanitary Sewer Overflows & CMOM – Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
September 28, 2004 in Bangor ME – After SWAP: BMP and Municipal Ordinances to Protect Drinking Water – Sponsored by MRWA – 729-6569 – Approved for 3.5 hours
*****
September 29, 2004 in Augusta, ME – Microsoft Excel Introduction – Sponsored by MRWA – 207-729-6569 – approved for 6 hours.
*****
October 1,8,15,22, 2004 in Waterville ME - Basic WW Treatment (SAC Course Volume 1) – Sponsored by JETCC/NEIWPCC – 253-8020 – Approved for 24 hours
*****
October 5, 2004 in Brunswick ME - Basic Math – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
October 6, 2004 in TBA - Chlorination Systems – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
October 7, 2004 in Bangor ME - Basic Math – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
October 12, 2004 in Norway ME - Basic Math – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
October 12, 2004 in Old Orchard Beach - WORKPLACE SAFETY SERIES #2: Ladder Safety, Fall Protection, Confined Space Retrieval & Chainsaw Safety– Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
Oct 13, 2004 in Brewer, MR Troubleshooting Aerated Lagoons - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
October 13, 2004 in TBA - Chlorination Systems – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
October 13, 2004 in Augusta, ME – Microsoft Word Introduction – Sponsored by MRWA – 207-729-6569 – approved for 6 hours.
*****
October 20 & 21, 2004 in Presque Isle ME - North Country Convention - Sponsored by JETCC – 253-8020 – Approved for 11 hours
*****
October 20, 2004 in TBA - Chlorination Systems – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
October 21 & 22, 2004 in Augusta ME - Laboratory Procedures – Sponsored by JETCC/NEIWPCC – 253-8020 – Approved for 12 hours
*****
October 26, 2004 in Caribou ME – The Pump Troubleshooter: Maximizing Your Pumping Efficiency – Sponsored by NEWWA – 508-893-7979 – approved for 6 hours.
*****
October 26, 2004 – Augusta, ME – Quick Books Introduction – Sponsored by MRWA – 207-729-6569 – approved for 6 hours.
*****
October 27, 2004 in TBA - Chlorination Systems – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
October 27, 2004 in Topsham ME - Hands On
Wastewater Microbiology – Sponsored by NWWTA - 761-2991 – Approved for 5 hours
*****
October 28, 2004 in Jay ME - Pipe Bursting, a practical and diverse rehab option - – Sponsored by JETCC – 253-8020 – Approved for 6 hours

October 28, 2004 in Topsham ME Hands On Filament Staining & Identification– Sponsored by NWWTA - 761-2991 – Approved for 5 hours
*****
Nov 4, 2004 in Calais, ME - Using Computer Spreadsheets - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
Nov 8, 2004 in South Portland ME - Surviving your Lab Inspection - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
November 9, 2004 in Norway, ME Beach - WORKPLACE SAFETY SERIES #2: Ladder Safety, Fall Protection, Confined Space Retrieval & Chainsaw Safety– Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
November 16, 2004 in Brewer ME - Total Maximum Daily Load: *Preparing For The Future* – Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
Nov 17, 2004 in North Vassalboro ME - Instrumentation Measurement & Control w/ Introduction to SCADA - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
November 18, 2004 in Portland ME - Lock Out Tag Out w/ Confined Space Entry Review SCADA - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
November 18, 2004 in Augusta, ME - Collection & Distribution Systems Blueprint Reading - Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
November 30-December 1, 2004 in Freeport ME – MRWA Annual Conference – Sponsored by MRWA – 729-6569 - approved for various hours depending on the class
*****
Dec 2, 2004 in Bangor ME - Surviving your Lab Inspection (EPA, DEP Safety) - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
December 2,2004 in Topsham, ME - Preparing For NPDES Lab Inspection & How To Write Lab SOPs- Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
December 7, 2004 in Brewer ME Beach - WORKPLACE SAFETY SERIES #2: Ladder Safety, Fall Protection, Confined Space Retrieval & Chainsaw Safety– Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
December 7, 2004 in TBA Basic Pipe Installation – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
December 8, 2004 in TBA Basic Pipe Installation – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
December 8, 2004 in Portland ME - Use of polymers in the WWTF (½ day) - Sponsored by JETCC – 253-8020 – Approved for 3 hours
*****
December 8, 2004 in Portland ME - Coagulants & Flocculants in water applications (½ day) SCADA - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
December 8, 2004 in Presque Isle, ME - Preparing For NPDES Lab Inspection & How To Write Lab SOPs – Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
December 9, 2004 in TBA Basic Pipe Installation – Sponsored by MRWA – 729-6569 – Approved for 4 hours
*****
Dec 14, 2004 in Augusta ME - Hands–on GIS 101for infrastructure management SCADA - Sponsored by JETCC – 253-8020 – Approved for 6 hours
*****
December 14, 2004 in Caribou ME - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 8 hours
*****

December 14, 2004 in Norway, ME - Preparing For NPDES Lab Inspection & How To Write Lab SOPs– Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
December 15, 2004 in Old Orchard Beach ME - Total Maximum Daily Load: *Preparing For The Future* – Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
December 15, 2004 in TBA - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 8 hours
*****
December 16, 2004 in TBA - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 8 hours
*****
December 16, 2004 in Presque Isle, ME - Workplace Safety Series #1: Fire Extinguishers, Low Voltage Electrical Safety, Lockout/ Tagout And Hazard Communication – Sponsored by NWWTA - 761-2991 – Approved for 4 hours
*****
December 21, 2004 in TBA - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 8 hours
*****
December 22, 2004 in TBA - Basic First Aid – Sponsored by MRWA – 729-6569 – Approved for 8 hours

Answers to *For Practice:*

1. d. The unit used to measure electrical power is the watt.

2. a. A proportional valve can be controlled to stay at any position between fully closed and fully open by a signal from some other device.

3. b. the average per capita (per person) water use is about 100 gallons per day.

4. c. The volume of the tank is 8 ft x 15 ft x 4 ft = 480 cu.ft.
   Multiply this number by 7.5 gal/cu.ft. = 3600 gallons
   Divide this result by 40 gal/min = <u>90 minutes</u>